WHAT IS CLAIMED IS:

1. A polymeric resin composition which, when cross-linked, is effective to provide an insulation shield for power cable which has strip force of greater than 3 pounds per half inch at 23 degrees Celsius after being stored at 100 degrees Celsius for 2 weeks and an initial strip force of not greater than 24 pounds per half inch at 23 degrees Celsius, the polymeric resin composition comprising:

(a) a copolymer of ethylene and an unsaturated ester selected from the group consisting of vinyl esters, acrylic acid esters, methacrylic acid esters and mixtures thereof;

(b) nano-particles which have been contacted with a swelling agent; and

(c) carbon black

wherein the copolymer, the nano-particles and the carbon black being in amounts which will provide a cross-linked insulation shield with a strip tension of greater than 3 pounds per half inch at 23 degrees Celsius after being stored at 100 degrees Celsius for 2 weeks and an initial strip force of not greater than 24 pounds per half inch at 23 degrees Celsius.

2. The polymeric resin composition as recited in claim 1 wherein the nano-particles having a particle size of 1 nm to 10,000 nm by 1 to 100 nm.

3. The polymeric resin composition as recited in claims 1 or 2 wherein the swelling agent is an onium ion.

4. The polymeric resin composition as recited in claims 1, 2, or 3 wherein the composition further comprises a free radical cross-linker.

5. A polymeric resin composition which when cross-linked which is effective to provide an insulation shield for power cable which has strip tension of greater than 3 pounds per half inch at 23 degrees Celsius after being stored at 100 degrees Celsius for 2 weeks and an initial strip force of not greater than 24 pounds per half inch at 23 degrees Celsius., the polymeric resin composition comprising:

(a) from 15 to 40 weight percent of a comonomer of ethylene and an unsaturated ester selected from the group consisting of vinyl esters, acrylic acid esters, methacrylic acid esters and mixtures thereof;

(b) at least 1 weight percent of nano-particles which have been contacted with a swelling agent which includes an onium ion; and

(c) from 10 to 50 weight percent of carbon black,

wherein the nano-particles and the carbon black being in amounts which will provide the insulation shield composition when cross-linked with a strip tension of greater than 3 pounds per half inch at 23 degrees Celsius after being stored at 100 degrees Celsius for 2 weeks and an initial strip force of not greater than 24 pounds per half inch at 23 degrees Celsius.

6. The polymeric resin composition as recited in claim 5 wherein the onium ion is selected from the group consisting of ammonium, phosphonium, imidazolium and sulfonium ions.

7. The polymeric resin composition as recited in claims 5 or 6 wherein the nano-particles are selected from the group consisting of silicate minerals having a particle size in the range of from about 100 nm to 1,000 nm by 1 to 10 nm, carbon single walled nanotubes having a particle size in the range of from 1-20 nm by 3-15 nm, and carbon nanotube fibrils having a particle size in the range of from 1000 nm to 10,000 nm by about 100 nm.

8. The polymeric resin composition as recited in claim 7 wherein the silicate minerals are selected from the group consisting of montmorillonite, fluoromica, saponite, fluorohectorite, laponite, sepiolite, attapulgite and magadiite.

9. The polymeric resin composition as recited in claims 6, 7, or 8 wherein the composition further includes a free radical cross-linker.

10. Power cable comprising:

(a) an electrical conductor;

(b) an insulation layer which surrounds the electrical conductor; and

(c) an insulation shield layer which surrounds and is contiguous with the insulation layer, the insulation shield layer comprising a cross-linked composition made from a blend which comprises

(i) a copolymer of ethylene and an unsaturated ester selected from the group consisting of vinyl esters, acrylic acid esters, methacrylic acid esters and mixtures thereof;

(ii) nano-particles which have been contacted with a swelling agent which includes an onium ion; and

(iii) carbon black,

wherein the copolymer, the nano-particles and the carbon black being in amounts which will provide the insulation shield with a strip tension of greater than 3 pounds per half inch at 23 degrees Celsius after being stored at 100 degrees Celsius for 2 weeks and an initial strip force of not greater than 24 pounds per half inch at 23 degrees Celsius.

11. The power cable as recited in claim 10 wherein the nano-particles have a particle size of 1 nm to 10,000 nm by 1 to 100 nm.

12. The power cable as recited in claim 11 wherein the onium ion is selected from the group consisting of ammonium, phosphonium, imidazolium and sulfonium ions.

13. The power cable as recited in claim 11 or 12 wherein the non-particles are selected from the group consisting of silicate minerals having a particle size in the range of from about 100 nm to 1,000 nm by 1 to 10 nm, carbon single walled nanotubes having a particle size in the range of from 1-20 nm by 3-15 nm, and carbon nanotube fibrils having a particle size in the range of from 1000 nm to 10,000 nm by about 100 nm.

14. Power cable comprising:

(a) an electrical conductor;

(b) an insulation layer which surrounds the electrical conductor; and

(c) an insulation shield layer which surrounds and is contiguous with the insulation layer, the insulation shield layer comprising a cross-linked composition made from a blend which comprises

(i) from 15 to 40 weight percent of a comonomer of ethylene and an unsaturated ester selected from the group consisting of vinyl esters, acrylic acid esters, methacrylic acid esters and mixtures thereof;

(ii) at least 1 weight percent of nano-particles which have been contacted with a swelling agent which includes an onium ion; and

(iii) from 10 to 50 weight percent of carbon black,

wherein the nano-particles and the carbon black being in amounts which will provide the insulation shield with a strip tension of greater than 3 pounds per half inch at 23 degrees Celsius after being stored at 100 degrees Celsius for 2 weeks and an initial strip force of not greater than 24 pounds per half inch at 23 degrees Celsius.

15. The power cable as recited in claim 14 wherein the onium ion is selected from the group consisting of ammonium, phosphonium, imidazolium and sulfonium ions.

16. The power cable as recited in claim 14 or 15 wherein the nano-particles are selected from the group consisting of silicate minerals having a particle size in the range of from about 100 nm to 1,000 nm by 1 to 10 nm, carbon single walled nanotubes having a particle size in the range of from 1-20 nm by 3-15 nm, and carbon nanotube fibrils having a particle size in the range of from 1000 nm to 10,000 nm by about 100 nm.

17. The power cable as recited in claim 16 wherein the silicate minerals are selected from the group consisting of montmorillonite, fluoromica, saponite, fluorohectorite, laponite, sepiolite, attapulgite and magadiite.

18. A polymeric resin composition which, when cross-linked, is effective to provide an insulation shield for power cable, the polymeric resin composition comprising:

(a) from 15 to 40 weight percent of a comonomer of ethylene and an unsaturated ester selected from the group consisting of vinyl esters, acrylic acid esters, methacrylic acid esters and mixtures thereof and less than 5 weight percent nitrile butadiene rubber;

(b) at least 1 weight percent of nano-particles which have been contacted with a swelling agent which includes an onium ion; and

(c) from 10 to 50 weight percent of carbon black.

19. The polymeric resin composition as recited in claim 18 wherein the onium ion is selected from the group consisting of ammonium, phosphonium, imidazolium and sulfonium ions.

20. The polymeric resin composition as recited in claims 18 or 19 wherein the composition further includes a free radical cross-linker.

21. The polymeric resin composition as recited in claims 18 or 19 wherein the composition does not have more than 3 weight percent nitrile butadiene rubber.

22. The polymeric resin composition as recited in claim 18 wherein the composition has less than 28 weight percent vinyl acetate comonomer.

23. The polymeric resin composition as recited in claim 21 or 22 wherein the composition does not have more than 1 weight percent nitrile butadiene rubber.

24. The polymeric resin composition as recited in claims 18 or 19 wherein the nano-particles are selected from the group consisting of silicate minerals having a particle size in the range of from about 100 nm to 1,000 nm by 1 to 10 nm, carbon single walled nanotubes having a particle size in the range of from 1-20 nm by 3-15 nm, and carbon nanotube fibrils having a particle size in the range of from 1000 nm to 10,000 nm by about 100 nm.

25. The polymeric resin composition as recited in claim 24 wherein the silicate minerals are selected from the group consisting of montmorillonite, fluoromica, saponite, fluorohectorite, laponite, sepiolite, attapulgite and magadiite.

26. Power cable comprising:

(a) an electrical conductor;

(b) an insulation layer which surrounds the electrical conductor; and

(c) an insulation shield layer which surrounds and is contiguous with the insulation layer, the insulation shield layer comprising a cross-linked composition made from a blend which comprises

(i) from 15 to 40 weight percent of a comonomer of ethylene and an unsaturated ester selected from the group consisting of vinyl esters, acrylic acid esters, methacrylic acid esters and mixtures thereof and less than 5 weight percent nitrile butadiene rubber;

(ii) at least 1 weight percent of nano-particles which have been contacted with a swelling agent which includes an onium ion; and

(iii) from 10 to 50 weight percent of carbon black,

wherein the nano-particles and the carbon black being in amounts which will provide the insulation shield with a strip tension of greater than 3 pounds per half inch at 23 degrees Celsius after being stored at 100 degrees Celsius for 2 weeks and an initial strip force of not greater than 24 pounds per half inch at 23 degrees Celsius.

27. The power cable as recited in claim 26 wherein the onium ion is selected from the group consisting of ammonium, phosphonium, imidazolium and sulfonium ions.

28. The power cable as recited in claim 26 or 27 wherein the nano-particles are selected from the group consisting of silicate minerals having a particle size in the range of from about 100 nm to 1,000 nm by 1 to 10 nm, carbon single walled nanotubes having a particle size in the range of from 1-20 nm by 3-15 nm, and carbon nanotube fibrils having a particle size in the range of from 1000 nm to 10,000 nm by about 100 nm.

29. The power cable as recited in claim 28 wherein the silicate minerals are selected from the group consisting of montmorillonite, fluoromica, saponite, fluorohectorite, laponite, sepiolite, attapulgite and magadiite.

30. The power cable as recited in claim 26 wherein the blend does not have more than 3 weight percent nitrile butadiene rubber.

31. A method for making an insulation shield for power cable, which shield has strip force of greater than 3 pounds per half inch at 23 degrees Celsius after being stored at 100 degrees Celsius for 2 weeks and an initial strip force of not greater than 24 pounds per half inch at 23 degrees Celsius, the method comprising blending:

(a) a copolymer of ethylene and an unsaturated ester selected from the group consisting of vinyl esters, acrylic acid esters, methacrylic acid esters and mixtures thereof;

(b) nano-particles which have been contacted with a swelling agent; and

(c) carbon black,

wherein the blend having less than 5 weight percent nitrile butadiene rubber and less than 28 percent vinyl acetate and

wherein the comonomer, the nano-particles and the carbon black being in amounts which will provide a cross-linked insulation shield with a strip tension of greater than 3 pounds per half inch at 23 degrees Celsius after being stored at 100 degrees Celsius for 2 weeks and an initial strip force of not greater than 24 pounds per half inch at 23 degrees Celsius.

32. The method as recited in claim 31 wherein the blend does not have more than 3 weight percent nitrile butadiene rubber.